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**CONTROL ID:** 1197405**TITLE:** The Nonlinear Magnetosphere: Expressions in MHD and in Kinetic Models**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster) [Invited]**CURRENT SECTION/FOCUS GROUP:** Nonlinear Geophysics (NG)**CURRENT SESSION:** NG17. The Impact of Nonlinear Processes in Space Plasma Environments**AUTHORS (FIRST NAME, LAST NAME):** Michael Hesse<sup>1</sup>, Joachim Birn<sup>2</sup>**INSTITUTIONS (ALL):** 1. Code 674, Space Weather Laborato, Greenbelt, MD, United States.

2. Los Alamos National Laboratory, Los Alamos, NM, United States.

**Title of Team:**

**ABSTRACT BODY:** Like most plasma systems, the magnetosphere of the Earth is governed by nonlinear dynamic evolution equations. The impact of nonlinearities ranges from large scales, where overall dynamics features are exhibiting nonlinear behavior, to small scale, kinetic, processes, where nonlinear behavior governs, among others, energy conversion and dissipation. In this talk we present a select set of examples of such behavior, with a specific emphasis on how nonlinear effects manifest themselves in MHD and in kinetic models of magnetospheric plasma dynamics.

**INDEX TERMS:** [2723] MAGNETOSPHERIC PHYSICS / Magnetic reconnection, [2752] MAGNETOSPHERIC PHYSICS / MHD waves and instabilities, [2753] MAGNETOSPHERIC PHYSICS / Numerical modeling.

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